WHAT IS CLAIMED IS:

1. A steam iron comprising:

a housing having a receiving chamber therein;

a water tank mounted in said receiving chamber, said water tank having a tank body for storing water, and a water supply pipe extended from said tank body;

a boiler mounted in said receiving chamber, said boiler having a boiler body connected to said water supply pipe for receiving water from said tank body and boiling water into steam, and a relief pipe having an end connected to said boiler body and an opposite end connected to said tank body;

a one-way check valve for controlling one-way flowing direction of water from said tank body to said boiler body, said one-way check valve having a casing mounted in said water supply pipe, and a valve flap movable in the casing of said one-way check valve between an open position and a close position, said valve flap being moved to said open position for enabling cold water to pass from said tank body to said boiler body when an internal pressure of said boiler body is within a predetermined level, said valve flap being moved to said close position by the internal pressure of said boiler body when the internal pressure of said boiler body surpassed the predetermined level; and

a relief valve having a casing mounted in said relief pipe, and a piston mounted in the casing of said relief valve and movable between an open position and a close position to control passage of said relief pipe, said piston being moved to the open position for enabling steam to pass from said boiler body to said tank body when the internal pressure of said boiler body surpassed the predetermined level, said piston being moved to the close position by water from said tank body to stop the passage of

said relief pipe when the internal pressure of said boiler body is below the predetermined level.

2. The steam iron as claimed in claim 1, wherein the casing of said one-way check valve comprises a water inlet disposed at an end thereof and connected to said tank body by said water supply pipe, a flow guide hole disposed at an opposite end thereof connected to said boiler body by said water supply pipe, and an actuation chamber axially connected between said water inlet and said flow guide hole, said actuation chamber having a diameter greater than said water inlet but smaller than said flow guide hole; wherein said valve flap is mounted in said actuation chamber and moved between the close position to seal said water inlet and the open position away from said water inlet for enabling water to pass from said tank body through said water inlet and said flow guide hole to said boiler body.

3. The steam iron as claimed in claim 2, wherein said one-way check valve further comprises a flow guide mounted in said flow guide hole for supporting said valve flap in the open position for enabling water to pass from said water inlet through said actuating chamber to said flow guide hole and then said boiler body.

4. The steam iron as claimed in claim 3, wherein said valve flap comprises a flap body and a plurality of protruding stop portions radially extended from a periphery of said flap body and disposed in lightly contact with a peripheral wall of said actuation chamber, said flap body having a diameter greater than said water inlet, said flap body sealing said water inlet when said valve flap moved to the close position; said flow guide is a tubular member comprising a grille disposed at an end for

supporting said valve flap in the open position for enabling water to pass through open spaces in said grille to said boiler body.

5. The steam iron as claimed in claim 1, wherein the casing of said relief valve comprises a transverse stop wall that stops the passage of said relief pipe, a center through hole cut through said transverse stop wall, and a plurality of relief holes cut through said transverse stop wall around said center through hole; said piston comprises a piston rod inserted through the center through hole of the casing of said relief valve, a piston head disposed at an end of said piston rod, and a stop flange extended around said piston rod, said piston head being attached to said stop wall to seal the center through hole and the relief holes of the casing of said relief valve and to further close the passage of said relief valve when said piston is moved to the close position, said piston head being moved away from said stop wall and said stop flange being stopped at said stop wall for enabling steam to pass from said boiler body through said relief valve to said tank body when said piston is moved to the open position.

6. The steam iron as claimed in claim 5, wherein said valve flap is made of elastic material.

7. The steam iron as claimed in claim 5, wherein said piston head has a flat sealing face disposed at one side facing said stop wall for sealing said center through hole and said relief holes.

8. The steam iron as claimed in claim 7, wherein said piston rod of said

piston is movable in said center through hole within a distance equal to the distance between said flat sealing face of said piston head and said stop flange.